SUMMARY
OF FIRST TERM

Summary of Unit One

Approximating to the nearest hundredth and thousandth

First Approximating to the nearest hundredth "2 decimal places"

- **To approximate to the nearest hundredth , do as follows :**

Look at the digit written at the thousandth's place

IF

This digit is

Less than 5

Leave out the digit at the thousandth's place and the other digits to the right.

For Example :

28.342 ≈ 28.34

Equal to 5 or more

Increase the digit at the hundredth's place by one, and leave out other digits to the right.

For Example :

7.1271 ≈ 7.13

Second Approximating to the nearest thousandth "3 decimal places"

- **To approximate to the nearest thousandth , do as follows :**

Look at the digit written at the ten thousandth's place

IF

This digit is

Less than 5

Leave out the digit at the ten thousandth's place and the other digits to the right.

For Example :

73.3421 = 73.342

Equal to 5 or more

Increase the digit at the thousandth's place by one, and leave out other digits to the right.

For Example :

57.2408 = 57.241

Comparing and ordering fractions

First Comparing two fractions of the same denominator

To compare any two fractions having the same denominator , compare their numerators , where the fraction with the greater numerator is greater than the other fraction.

For Example :

$\frac{5}{9} > \frac{4}{9}$

Second Comparing two fractions of the same numerator

To compare any two fractions having the same numerator, compare their denominators , where the fraction with the smaller denominator is greater than the other fraction.

For Example :

$\frac{3}{7} > \frac{3}{8}$

Third Comparing two fractions of different numerators and denominators

To compare two fractions of different numerators and denominators , do as follows :

1. **Put** each of the two fractions in its simplest form if it isn't.
2. **If** the numerators or the denominators of the two fractions after simplifying are equal , then compare between them as we have studied before.
3. **If** the numerators and the denominators of the two fractions are not equal, then express the two fractions by two other equal fractions with least common denominator L.C.D. by using L.C.M. of the two denominators.
4. **Compare** the two new fractions.

Summary

Fourth Comparing fractions and decimals

- To compare a fraction and a decimal, convert the decimal into fraction with denominator 10 , 100 , 1000 , . . . , then compare between the two fractions.

Multiplying decimals by 10 , 100 and 1000

- **To multiply by 10** , move the decimal point 1 place to the right.

  For Example: $2.5739 \times 10 = 25.739$

- **To multiply by 100** , move the decimal point 2 places to the right.

  For Example: $2.5739 \times 100 = 257.39$

- **To multiply by 1000** , move the decimal point 3 places to the right.

  $3.7 \times 1000 = 3700$

Multiplying decimals

For Example : To multiply : 2.45×0.7 , you can follow the following steps :

1. Ignore the decimal point to obtain two whole numbers 245 and 7
2. Multiply the two whole numbers : $245 \times 7 = 1715$
3. Add the numbers of decimal places in both initial numbers : $2 + 1 = 3$
4. Place the decimal point in the product : 1.715

2.45	⇨ 2 decimal places
× 0.7	⇨ 1 decimal place
1.715	⇨ 3 decimal places

Multiplying fractions

First Multiplying two fractions

- **To multiply two fractions , do as follows :**
  1. Multiply the numerators of the two fractions to get the numerator of the product.
  2. Multiply the denominators of the two fractions to get the denominator of the product.
  3. Put the resulting fraction in its simplest form.

For Example :

$\frac{1}{3} \times \frac{6}{7} = \frac{1 \times 6}{3 \times 7} = \frac{6}{21} = \frac{2}{7}$

Another solution :

$\frac{1}{\cancel{3}_1} \times \frac{\cancel{6}^2}{7} = \frac{1 \times 2}{1 \times 7} = \frac{2}{7}$

Second Multiplying a whole number by a fraction

- **To multiply a whole number by a fraction , do as follows :**

(1) Change the whole number to a fraction by placing it over a denominator of 1

(2) Multiply the numerators. (3) Multiply the denominators.

For Example :

$$\frac{1}{6} \times 27 = \frac{1}{6} \times \frac{27}{1} = \frac{1}{\cancel{6}_{2}} \times \frac{\cancel{27}^{9}}{1} = \frac{1 \times 9}{2 \times 1} = \frac{9}{2} = 4\ \frac{1}{2}$$

Third Multiplying a mixed number by a fraction or a mixed number

- **To multiply a mixed number by a fraction or a mixed number , do as follows :**

(1) Change the mixed number into an improper fraction.

(2) Multiply the two fractions as shown in multiplying two fractions.

For Example :

$$1\frac{1}{4} \times \frac{3}{10} = \frac{\cancel{5}^{1}}{4} \times \frac{3}{\cancel{10}_{2}} = \frac{3}{8}$$

Dividing fractions

To divide a fraction by another fraction :
Exchange the numerator and the denominator of the second fraction **(the divisor)** , then multiply it by the first fraction.

For Example :

$$\frac{5}{7} \div \left(\frac{4}{5}\right) = \frac{5}{7} \times \frac{5}{4} = \frac{5 \times 5}{7 \times 4} = \frac{25}{28}$$

Dividing decimals by 10 , 100 and 1000

- **To divide by 10** , move the decimal point 1 place to the left.

  For Example : 257.39 ÷ 10 = 257.39

- **To divide by 100** , move the decimal point 2 places to the left.

  For Example : 73.9 ÷ 100 = 0.739

Summary

- **To divide by 1000** , move the decimal point 3 places to the left.

For Example : $2573.9 \div 1000 = 2.5739$

Dividing a whole number by a 3-digit number without having a remainder

For Example :

- **To divide 19912 ÷ 152 , do as follows :**

When **dividing** by a **3-digit** number, **start** with the **first three digits to the left.**

1 Divide 199 by 152, the result is 1 and the remainder is 47 because :
$1 \times 152 = 152$ & $199 - 152 = 47$

```
      1
152 | 19912
    - 152
    -----
      47
```

2 Drop 1, then divide 471 by 152, the result is 3 and the remainder is 15 because :
$3 \times 152 = 456$
& $471 - 456 = 15$

```
      13
152 | 19912
    - 152↓
    ------
      471
    - 456
    ------
       15
```

3 Drop 2 , then divide 152 by 152, the result is 1 and the remainder is 0

```
      131
152 | 19912
    - 152
    ------
      471
    - 456↓
    ------
      152
    - 152
    ------
        0
```

Then, 19912 ÷ 152 = 131

Draft

You can use this draft to estimate the result of dividing by 152 :

$152 \times 0 = 0$
$152 \times 1 = 152$ ← 199
$152 \times 2 = 304$
$152 \times 3 = 456$ ← 471
$152 \times 4 = 608$

Note :

- 199 lies between 152 and 304

  So , we take 1 when dividing 199 by 152
- 471 lies between 456 and 608

  So , we take 3 when dividing 471 by 152

Dividing by a decimal

- **To divide by a decimal,** you can use the same way of dividing whole numbers, by writing the divisor as a whole number.

  Do this by **multiplying the divisor and the dividend by 10, 100, 1000,** ... ect.
  according to the number of places of the decimal part of the divisor.

For Example :

$$2.4 \div 1.2 = \frac{2.4 \times 10}{1.2 \times 10} = \frac{24}{12} = 2$$

Another solution :

$2.4 \div 1.2 = 2.4 \div 1.2 = 2$

Third solution :

$$2.4 \div 1.2 = \frac{24}{10} \div \frac{12}{10} = \frac{\cancel{24}^{2}}{\cancel{10}_{1}} \times \frac{\cancel{10}^{1}}{\cancel{12}_{1}} = 2$$

Infinite division

Sometimes, when we divide the numerator of a fraction by the denominator, we never reach a final digit.

For Example :

- **To divide 13 ÷ 123 approximating the quatient to the nearest hudredth , do as follows :**

```
      0.105
123 | 13.0
    - 12.3
      0.700
    -  0.615
      0.085
```

Then , 13 ÷ 123 ≃ 0.11
to the nearest hundredth.

Summary of Unit Two

Mathematical expression of a set

First Listing method

For Example :

- The set of digits of the number 2010 = $\{2 , 0 , 1\}$

Second The description method

Example :

If X = $\{r , a , t\}$, then we can express the set X as one of the following :

- X = the set of letters of the word "rat".
- X = the set of letters of the word "art".

Types of sets

1 Finite set

A finite set is a set has a limited number of elements.
i.e. The number of its elements can be listed.

For Example :

- The set of names of the months of a year is finite because the number of its elements is 12

2 Infinite set

An infinite set is a set has an unlimited number of elements.
i.e. The number of its elements cannot be listed.

For Example :

- The set of even numbers = $\{0 , 2 , 4 , 6 , 8 , ...\}$

3 The null (empty) set

The null set is the set that has no elements.
It is denoted by symbol { } or ∅ which is read as "phi"

For Example :

- The set of your class pupils who visited the moon.

Equal sets

Two sets are equal if they have the same elements exactly.

For Example :

- If $A = \{a , b , c\}$ and $B = \{a , c , b\}$, then $A = B$

Important symbols

∈ denotes
"the **belonging** of an element to a set".
For Example :
$2 \in \{5 , 2 , 3\}$

∉ denotes
"the **not belonging** of an element to a set".
For Example :
$6 \notin \{16 , 5 , 2\}$

The symbols ∈ ∉

⊂ denotes
"the **subset** of a set to another set".
For Example :
$\{5 , 2\} \subset \{2 , 3 , 5\}$

⊄ denotes
"the **not subset** of a set to another set".
For Example :
$\{5 , 0\} \not\subset \{5 , 8 , 7\}$

The symbols ⊂ ⊄

Remarks

1. The empty set ∅ is a subset of any set
   For Example : $\varnothing \subset \{a , b , c\}$, $\varnothing \subset \{1 , 2 , 3 , \cdots\}$, $\varnothing \subset \{0\}$
2. Any set is a subset of itself "$X \subset X$"
   For Example : $\{1 , 2\} \subset \{2 , 1\}$

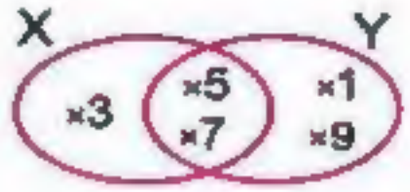
Summary

Intersection of two sets

The intersection of the two sets is the set of all common elements in the two sets. It is denoted by the symbol "∩"

For Example :

- If $X = \{3 , 5 , 7\}$, $Y = \{1 , 5 , 7 , 9\}$, then $X \cap Y = \{5 , 7\}$

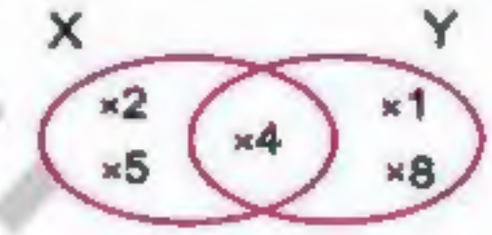


Union of two sets

The union of the two sets X and Y is that set which contains all the elements belonging to X or Y. It is denoted by the symbol "U"

For Example :

- If $X = \{2 , 4 , 5\}$ and $Y = \{1 , 4 , 8\}$, then $X \cup Y = \{2 , 4 , 5 , 1 , 8\}$



The universal set

The universal set is the mother set which includes all the given subsets. It is denoted by "U"

For Example :

- If $X = \{2 , 5 , 7\}$ and $Y = \{3 , 4 , 5 , 6\}$, then the universal set U = the set of whole numbers less than 8

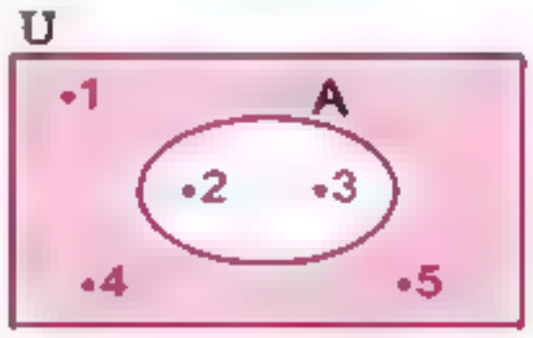
"You can find other universal sets"

The complement of a set

If U is the universal set and A is a subset of U , then the complement of A is the set of elements in U but not in A

For Example :

- If $U = \{1, 2, 3, 4, 5\}$ and $A = \{2, 3\}$, then $\acute{A} = \{1, 4, 5\}$



Difference between two sets

X difference Y

is the set of elements that belongs to X and does not belong to Y , it is written as "X – Y"

Y difference X

is the set of elements that belongs to Y and does not belong to X , it is written as "Y – X"

For Example :

- If $X = \{1, 2, 4, 5, 7\}$ and $Y = \{0, 1, 3, 4, 6, 7\}$, then :
- $X - Y = \{2, 5\}$
- $Y - X = \{0, 3, 6\}$

Notice

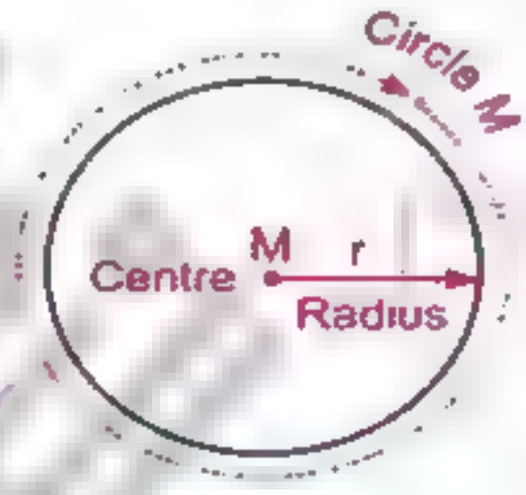
$X - Y \neq Y - X$

Summary of Unit Three

Circle

The **circle** is a closed curve , all the points on it having the same distance from a fixed point.

The fixed point is called the "centre" of the circle.



The constant distance is called the "radius length" of the circle , it is denoted by r

Remark

In the opposite figure :

If M is a circle of radius r :

① The point A is on the circle M (A ∈ circle M) , then :

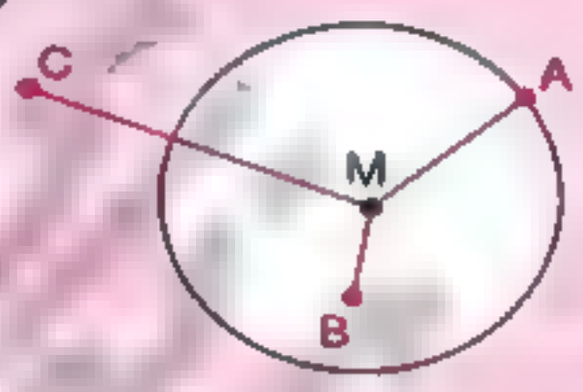
MA = r

② The point B is inside the circle M , then :

MB < r

③ The point C is outside the circle M , then :

MC > r



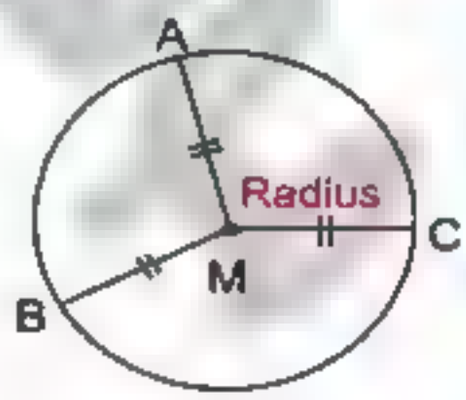
The radius of a circle

The radius of a circle is a line segment whose endpoints are the centre of the circle , and any point on the circle.

For Example :

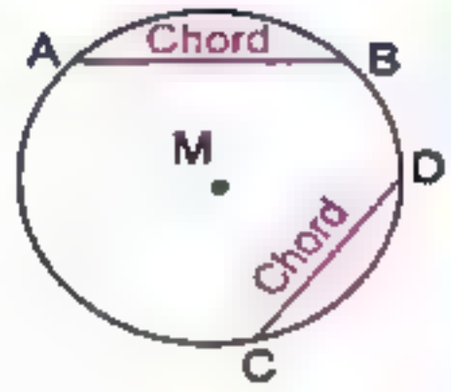
Each of $\overline{MA}$, $\overline{MB}$ and $\overline{MC}$ is a radius of the circle M ,

MA = MB = MC



A chord in a circle

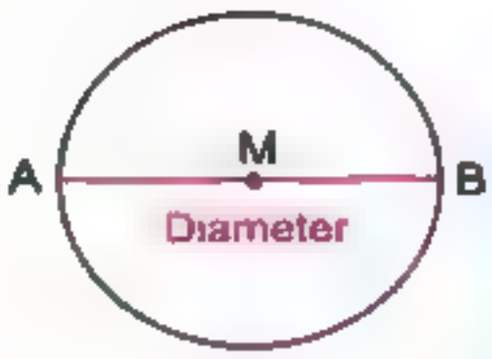
A chord in a circle is a line segment that connects between any two points on the circle.



For Example :
Each of $\overline{AB}$ and $\overline{CD}$ is a chord in the circle M

The diameter of a circle

The diameter of the circle is a chord that crosses the centre of the circle.



For Example :
$\overline{AB}$ is a diameter in the circle M

Notice

- The diameter of the circle is the longest chord.
- The length of any diameter in a circle is equal to twice the length of its radius.

i.e. The length of the diameter = 2 × the length of the radius.

$$d = 2 \times r$$

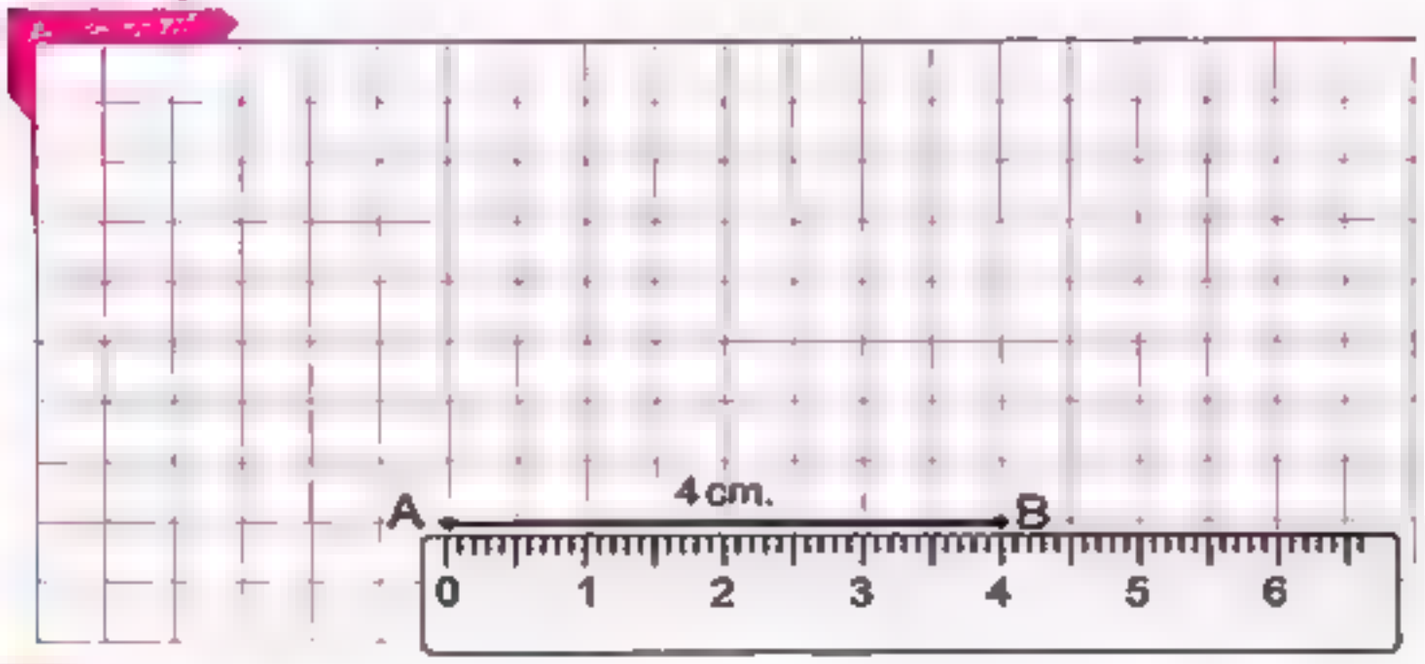
Drawing a triangle given the lengths of its three sides

Example

Draw the triangle ABC in which AB = 4 cm. , BC = 3 cm. and CA = 2 cm.

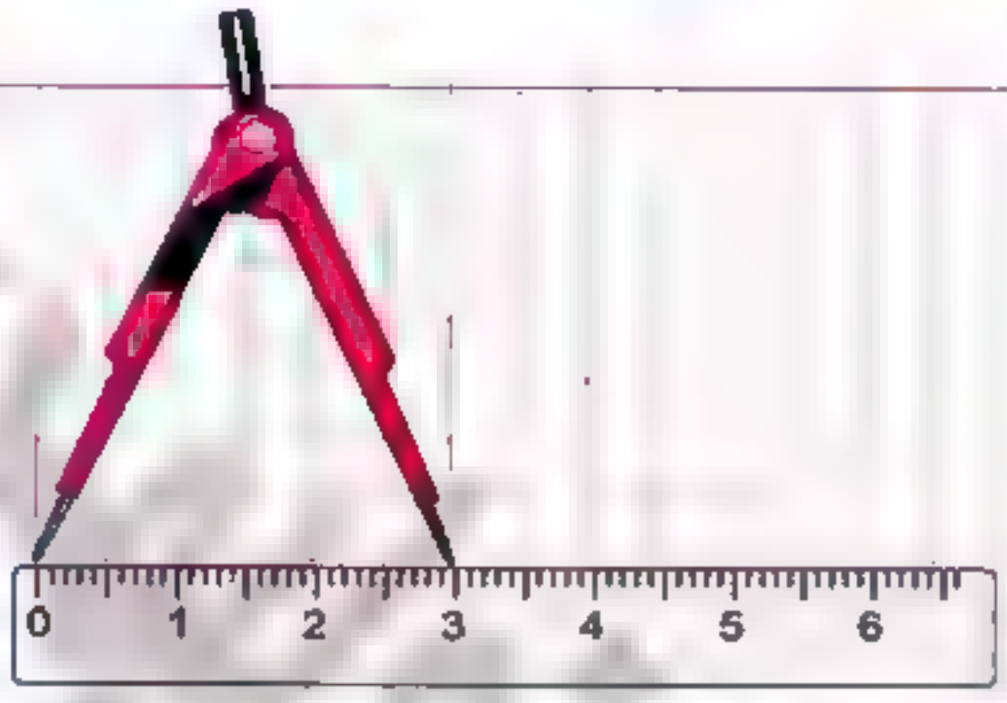
Solution

STEP 1



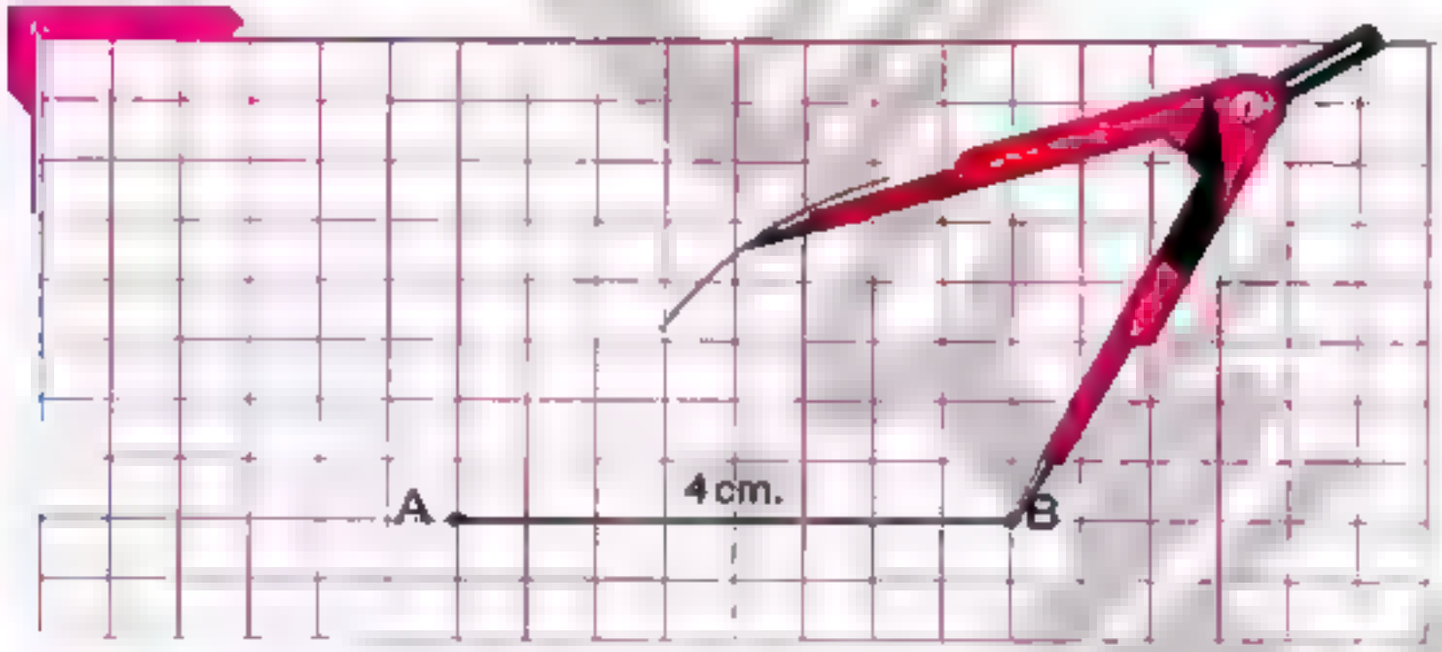
Use the ruler to draw the line segment $\overline{AB}$ of length 4 cm.

STEP 2



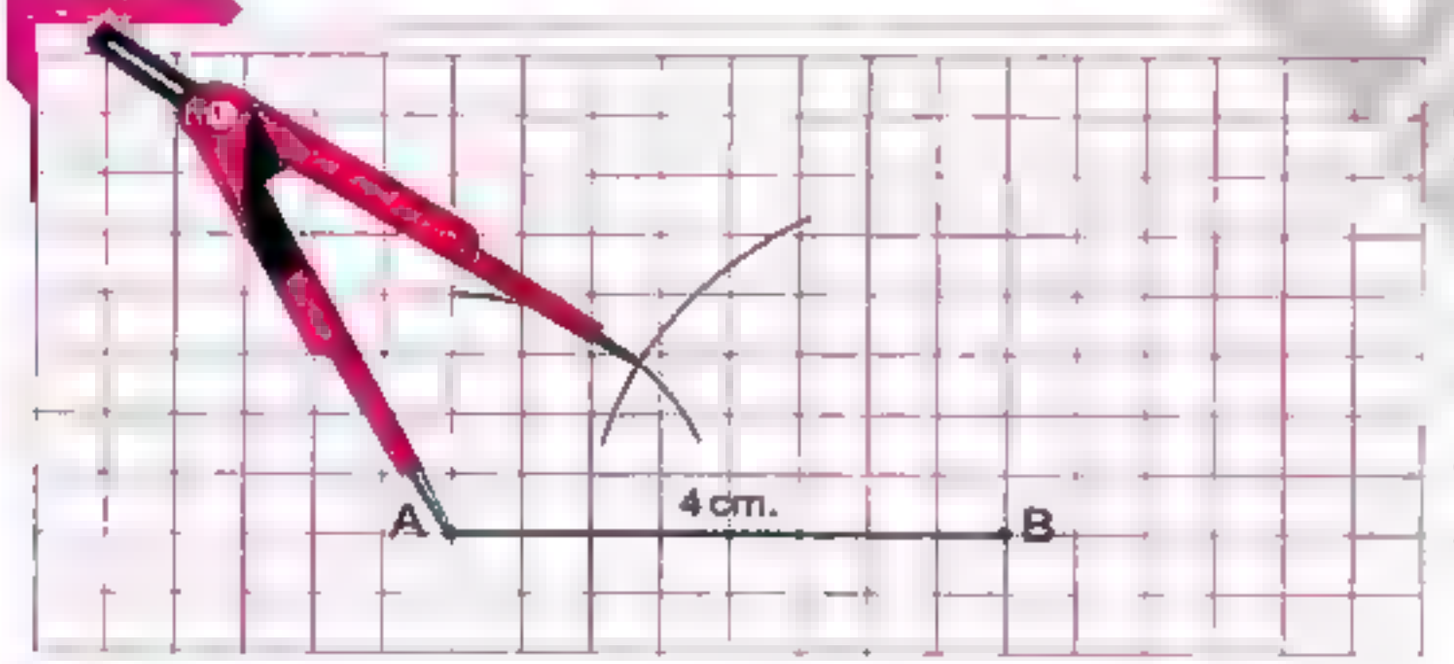
Open the compasses on the ruler such that the distance between the sharp point and the pencil equals 3 cm. to draw $\overline{BC}$

STEP 3



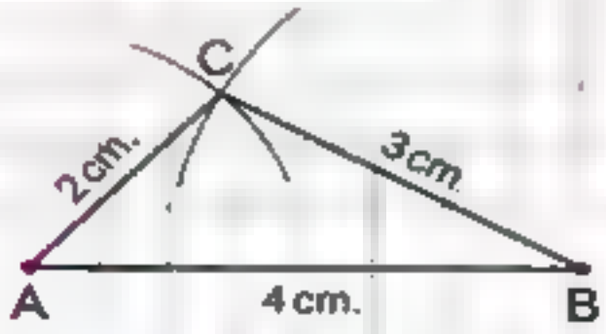
Place the sharp point at B and turn the compasses to draw an arc as in figure.

STEP 4



Similarly open the compasses to a distance equal to 2 cm. to draw $\overline{CA}$ and place the sharp point at A, then turn the compasses to draw another arc that intersects the first arc at the point C

STEP 5



Draw each of $\overline{BC}$ and $\overline{CA}$, then the triangle ABC is the required triangle.

Drawing a line segment perpendicular to a straight line from a point outside it

For Example :

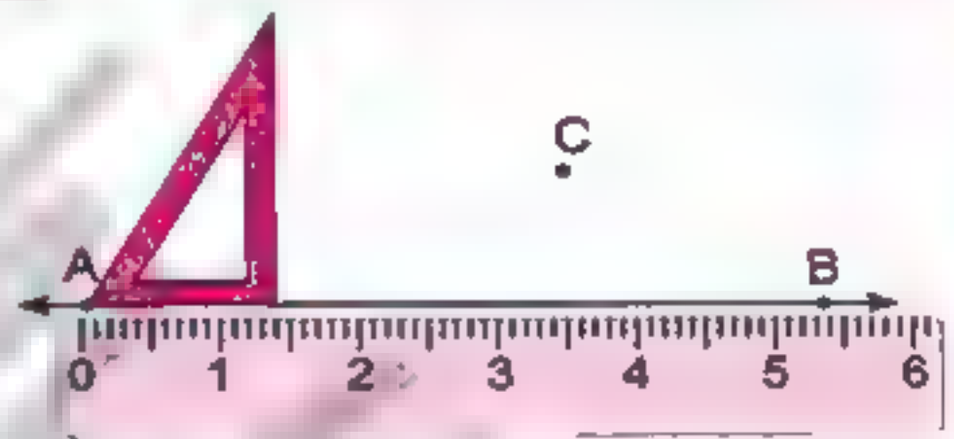
To draw a perpendicular from C to $\overleftrightarrow{AB}$ follow the following steps :

STEP 1

Put the edge of the ruler on $\overline{AB}$

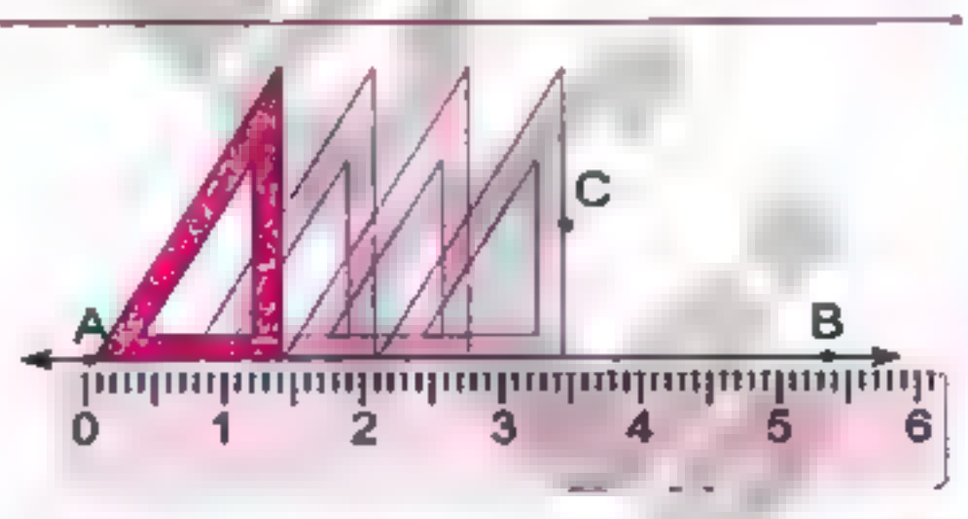
STEP 2

Put the edge of one side of the right angle of the set square on the edge of the ruler.



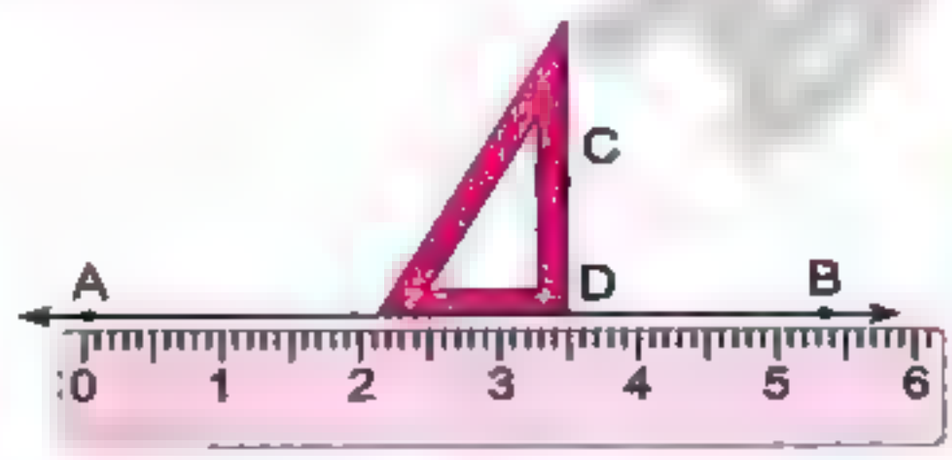
STEP 3

Move the set square in the direction of the arrow as in the opposite figure to slide along the edge of the ruler till it reaches the point C



STEP 4

From C draw a line segment intersects $\overline{AB}$ at D , then $\overline{CD} \perp \overline{AB}$



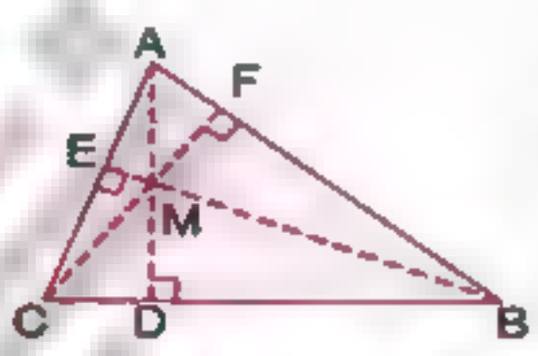
Summary

The altitudes of a triangle

An altitude of a triangle is a line segment drawn from a vertex of the triangle perpendicular to its corresponding base , or to its corresponding base extended.

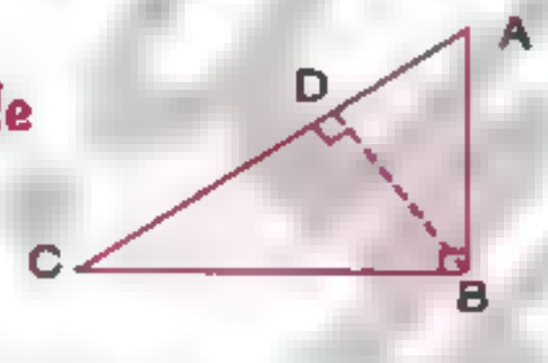
Remarks

The altitudes of
an acute-angled triangle



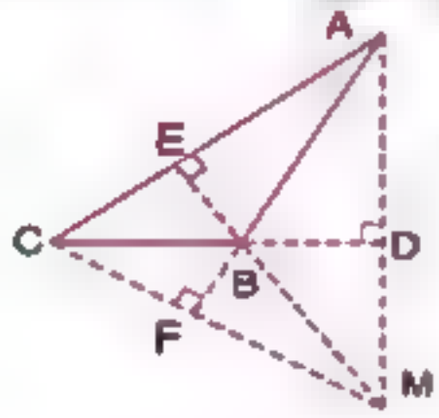
$\overline{AD}$, $\overline{BE}$ and $\overline{CF}$ are
the altitudes of ΔABC
They intersect at one point (M)
inside the triangle.

The altitudes of
a right-angled triangle



$\overline{AB}$, $\overline{BC}$ and $\overline{BD}$ are
the altitudes of ΔABC
They intersect at one point (B)
which is **the vertex of**
the right angle.

The altitudes of
an obtuse-angled triangle



$\overline{AD}$, $\overline{BE}$ and $\overline{CF}$ are
the altitudes of ΔABC
$\overline{AD}$ and $\overline{CF}$ lie outside
ΔABC and the three altitudes
intersect at one point (M)
outside the triangle.

Summary of Unit Four

Experimental probability

$$\text{Experimental probability} = \frac{\text{Number of trials in which the outcome occurs}}{\text{Total number of trials}}$$

Sample space

The sample space of an experiment is the set of all possible outcomes of this experiment. It is usually denoted by (S)

For Example :

- Tossing a regular coin once , then S = {Head , Tail}
- Rolling a regular die once and observing the apparent number on the upper face , then S = {1 , 2 , 3 , 4 , 5 , 6}

Event

In an experiment , **an event** is any subset of the sample space of this experiment.

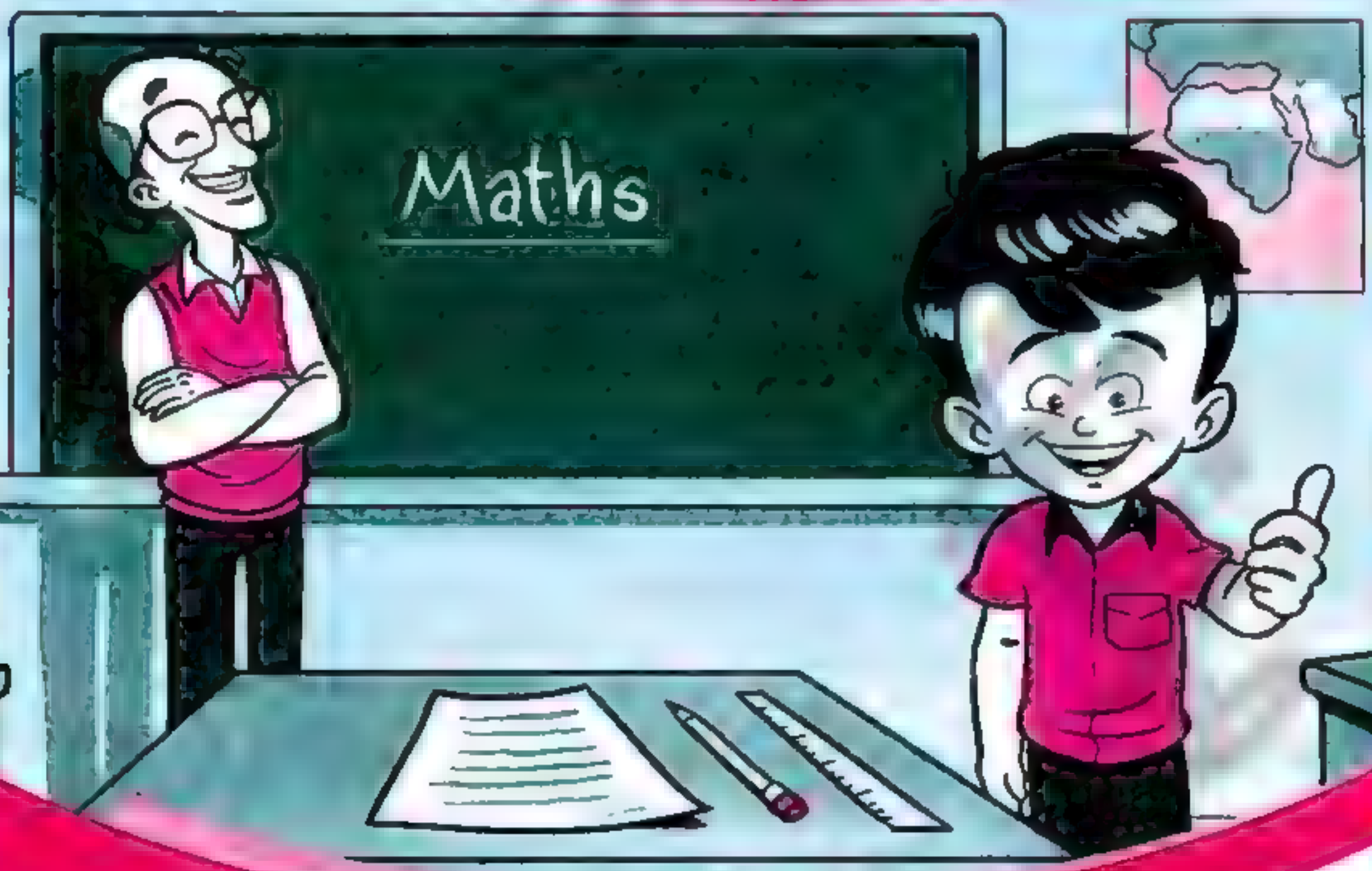
Theoretical probability

Theoretical probability is finding the probability of events that come from a sample space of outcomes having equal chance to occur.

$$\text{The probability of an event to be occurred} = \frac{\text{Number of outcomes of the event}}{\text{Number of all possible outcomes}}$$

First

Worksheets on unit (1) and unit (2)



Sheet 1

Total mark 20

On lesson 1 *unit* 1

(1) Complete each of the following : 5

[a] 0.7351 ≃ ..... (to the nearest hundredth)

[b] 152.3017 ≃ ..... (to the nearest thousandth)

[c] $\frac{2758}{1000}$ ≃ ..... (to the nearest hundredth)

[d] $3\frac{18}{500}$ ≃ ..... (to the nearest hundredth)

[e] 0.9998 ≃ ..... (to the nearest thousandth)

(2) Choose the correct answer : 5

[a] 5.994 ≃ 5.99 to the nearest .....

(unit *or* tenth *or* hundredth *or* thousandth)

[b] 12.3794 ≃ 12.38 to the nearest .....

(unit *or* tenth *or* hundredth *or* thousandth)

[c] $4\frac{1}{8}$ ≃ ..... to the nearest hundredth.

(4.125 *or* 4.12 *or* 4.13 *or* 4.1)

[d] 3 725 m. ≃ ..... to the nearest kilometre.

(3 *or* 4 *or* 37 *or* 3 730)

[e] 47 997 mL. ≃ ..... to the nearest litre.

(47.9 *or* 47 *or* 48.99 *or* 48)

(3) Complete each of the following : 5

[a] 14.372 + 15.449 = ... ≃ ..... (to the nearest hundredth)

[b] 17.48 – 9.3746 = ... ≃ ..... (to the nearest thousandth)

[c] $2\frac{3}{8} - \frac{4}{200}$ = ... ≃ ..... (to the nearest hundredth)

[d] The difference between $\frac{31}{500}$ and 0.421 = ... ≃ ..... (to the nearest hundredth)

[e] 13 259 gm. ≃ ..... kg. (to the nearest kilogram)

(4) Write the greatest decimal fraction which consists of 3 , 5 , 4 and 2 , then approximate it to the nearest hundredth and to the nearest thousandth. 2

(5) Two pieces of cloth are of length 85.91 m. and 82.3972 m. Find the sum of the lengths of the two pieces approximating the result to the nearest thousandth. 3

Sheet 2

Total mark 20

From lesson 1 unit 1
to lesson 2 unit 1

1 Put the suitable relation (>) , (<) or (=) : (6)

[a] $\frac{7}{11}$ ☐ $\frac{5}{11}$

[b] $1\frac{9}{10}$ ☐ $2\frac{1}{10}$

[c] 1 ☐ $\frac{3}{5}$

[d] $\frac{3}{4}$ ☐ $\frac{5}{6}$

[e] 3.2 ☐ $3\frac{1}{2}$

[f] $\frac{61}{8}$ ☐ $7\frac{1}{2}$

2 [a] Arrange each of the following in an ascending order : (4)

(1) $\frac{1}{2}$, $\frac{2}{5}$, $\frac{7}{10}$ and $\frac{1}{4}$

(2) 2.4 , $2\frac{1}{2}$, $3\frac{4}{5}$ and $1\frac{1}{2}$

[b] Arrange each of the following in a descending order :

(1) $\frac{1}{2}$, $\frac{7}{8}$, 1 and $\frac{2}{5}$

(2) $\frac{1}{4}$, 0.8 , 0.4 , $\frac{1}{2}$ and $\frac{3}{4}$

3 Complete each of the following : (5)

[a] 37.258 ≃ ..... (to the nearest hundredth)

[b] If $\frac{3}{8} = \frac{a}{24}$, then a = ...

[c] 42.7935 ≃ 42.794 to the nearest .....

[d] If $\frac{16}{36} = \frac{4}{b}$, then b = ...

[e] $\frac{3}{500}$ ≃ .. . . (to the nearest hundredth)

4 Find the values of x that satisfies the relation $\frac{3}{8} < \frac{x}{8} < \frac{9}{8}$ such that x is a whole number. (3)

5 Write the smallest decimal fraction which consists of 3 , 9 , 2 and 4 , then approximate it to the nearest thousandth. (2)

7

Sheet 3

Total mark 20

From lesson 1 unit 1
to lesson 3 unit 1

1 **Complete each of the following :** (5)

[a] 32.563 × 100 = ...

[b] 25.0825 ≃ .... (to the nearest thousandth)

[c] 7.003 kg. = ... gm.

[d] If $\frac{3}{7} = \frac{x}{21}$, then x = ...

[e] $4\frac{5}{8}$ ≃ ..... (to the nearest hundredth)

2 **Choose the correct answer :** (5)

[a] 4.162 × 100 ..... 41.62 (> or < or =)

[b] 32.531 × 10 ... . 0.32531 × 1 000 (> or < or =)

[c] 572.4 cm. ≃ ..... m. "to the nearest metre"

(6 or 50 or 60 or 572)

[d] 37.756 ≃ 37.76 to the nearest .....

(tenth or hundredth or thousandth or unit)

[e] 7.04 × ..... = 704 (10 or 100 or 1 000 or 10 000)

3 **Put (✓) for the correct statement and (×) for the incorrect one :** (5)

[a] 5.47 × 1 000 = 547 ( )

[b] if $\frac{3}{5} = \frac{a}{10}$, then a = 6 ( )

[c] 2.53 × 100 = 25.3 × 10 ( )

[d] $3.7 < 3\frac{5}{8}$ ( )

[e] 2.5781 ≃ 2.58 (to the nearest 3 decimal places) ( )

4 If the price of a piece of sweet is 2.25 pounds. (2)

What is the price of 10 pieces of the same kind ?

5 **[a] Find the result of each of the following :** (3)

(1) (37.21 + 3.4) × 10 = ...

(2) (7.742 × 100) – 32.4 = ...

[b] Arrange the following numbers ascendingly :

$4\frac{1}{4}$, 4.025 , 4.375 and $4\frac{1}{8}$

Sheet 4

Total mark 20

From lesson 1 unit 1
to lesson 4 unit 1

1 **Find the product of each of the following :** (5)

[a] $53 \times 0.7 =$ ..

[b] $24 \times 0.06 =$ ..

[c] $14 \times 0.003 =$ ..

[d] $5.4 \times 3.2 =$ ..

[e] $2.1 \times 0.34 =$ ..

2 **Choose the correct answer :** (5)

[a] $2.3 \times 0.004 =$ ..... (92 *or* 0.92 *or* 0.0092 *or* 0.092)

[b] $136.592 \simeq 136.6$ to the nearest .... (ten *or* tenth *or* hundredth *or* unit)

[c] $\frac{3}{8}$ ..... 0.35 (> *or* < *or* =)

[d] 47.325×10 ..... 4.7325×100 (< *or* = *or* >)

[e] $426.305 \simeq$ ..... (to the nearest hundredth)
(400 *or* 426.30 *or* 426.31 *or* 426.305)

3 **Complete each of the following :** (5)

[a] $35.61 \times 0.1 \simeq$ .....

[b] $12.5 + 7.632 =$ ..... $\simeq$ ..... (to the nearest $\frac{1}{100}$)

[c] $5.37 \times 5 =$ ..... $\simeq$ ..... (to the nearest tenth)

[d] 7.3 m. = ... dm.

[e] $45.278 - 28.3451 =$ ..... $\simeq$ ..... (to the nearest 0.001)

4 **Find the area of the rectangle , its dimensions are 2.4 cm. and 4.5 cm. approximating the result to the nearest unit.** (3)

5 **If the price of one metre of cloth is 7.75 pounds , find the price of 2.25 metres of this cloth approximated to the nearest pound.** (2)

Sheet 5

Total mark 20

From lesson 1 unit 1
to lesson 5 unit 1

1 **Find the result of each of the following :** (5)

[a] $\frac{1}{2} \times \frac{4}{5}$ = ...

[b] $16 \times \frac{5}{8}$ = ...

[c] $3\frac{2}{5} \times 4\frac{1}{2}$ = ...

[d] 3.5×0.5 = ...

[e] 37.59×100 = ...

2 **Choose the correct answer :** (5)

[a] 38.623 litres = ... mL.

(386.23 *or* 3862.3 *or* 38 623 *or* 1 000)

[b] $\frac{3}{4} \times 1\frac{1}{2}$ = ...

($\frac{9}{8}$ *or* $\frac{1}{2}$ *or* $\frac{6}{10}$ *or* $\frac{5}{4}$)

[c] $1\frac{3}{7}$ ..... $1\frac{4}{7}$

(> *or* < *or* =)

[d] 93.4987 ≃ ..... to the nearest thousandth.

(93.40 *or* 93.50 *or* 93.499 *or* 93.5)

[e] If $\frac{6}{13} < \frac{x}{13} < \frac{8}{13}$, then x = ...

(6 *or* 7 *or* 8 *or* 13)

3 **Complete each of the following :** (5)

[a] $1\frac{1}{5} \times 2\frac{1}{3}$ = ...

[b] 3.52 × 7.4 = ...

[c] 3.5 km. = ... m.

[d] $2\frac{3}{8}$ ≃ ..... (to the nearest 2 decimal places)

[e] $3\frac{1}{4} \times \frac{4}{13}$ = ...

4 **[a] Arrange the following numbers in a descending order :** (3)

$\frac{1}{2}$, $\frac{7}{8}$, 1 and $\frac{2}{5}$

[b] Put (>) , (<) or (=) :

(1) $2\frac{1}{4}$ ☐ $\frac{7}{3}$

(2) 5.73 × 100 ☐ 57 300

5 The price of a bar of chocolate is L.E. $2\frac{3}{4}$ (2)

What is the cost of 15 bars of the same kind ?

Sheet 6

Total mark 20

From lesson 1 unit 1
to lesson 6 unit 1

1 Find the quotient of each of the following : (5)

[a] $\frac{3}{4} \div \frac{3}{8} =$ .....

[b] $\frac{2}{5} \div \frac{7}{10} =$ .....

[c] $8 \div \frac{4}{9} =$ .....

[d] $1\frac{3}{4} \div \frac{1}{2} =$ .....

[e] $6\frac{1}{4} \div 12\frac{1}{2} =$ .....

2 Put (>) , (<) or (=) : (5)

[a] $\frac{3}{4}$ of an hour ☐ 40 minutes.

[b] $\frac{4}{5}$ ☐ $\frac{2}{3}$

[c] $7 \times \frac{1}{3}$ ☐ $2\frac{1}{3}$

[d] $2\frac{1}{2} \div 4$ ☐ $\frac{7}{8}$

[e] 3.2 kg. ☐ 3 200 gm.

3 Complete the following : (5)

[a] $7.35 + 16.028 \simeq$ ..... (to the nearest $\frac{1}{100}$)

[b] 2.56 m. = ... cm.

[c] $2.3 \times 1.1 =$ .....

[d] $\frac{2}{15} \times \frac{5}{6} =$ .....

[e] $\frac{2}{5} + 3 =$ .....

4 The perimeter of a square is $\frac{8}{11}$ m. (3)

Find the side length of the square.

5 Ahmed bought a piece of cloth 4.2 metres long , if the price of one metre is 48.7 pounds. Calculate the price of the cloth approximating the result to the nearest pound. (2)

Sheet 7

Total mark 20

From lesson 1 unit 1
to lesson 7 unit 1

1 **Complete the following :** (5)

[a] 8.4 ÷ 10 = ...

[b] 3.6 × 100 = ...

[c] 2456.8 ÷ 1 000 = ...

[d] 372.5 gm. = ... kg.

[e] 5 629 m. ≃ ..... km. (to the nearest km.)

2 **Choose the correct answer :** (5)

[a] 4.617 × ..... = 4 617 (10 *or* 100 *or* 1 000 *or* 0.1)

[b] $\frac{5}{9}$ ..... $\frac{7}{11}$ (> *or* < *or* =)

[c] 9.612 × 100 ..... 9 612 ÷ 100 (> *or* < *or* =)

[d] $\frac{2}{3} \times \frac{9}{8}$ = ... ($\frac{3}{4}$ *or* $\frac{4}{3}$ *or* 3 *or* $\frac{1}{4}$)

[e] $1\frac{1}{2} \div \frac{1}{4}$ = ... (2 *or* 6 *or* $\frac{3}{8}$ *or* 12)

3 **Arrange the following numbers ascendingly :** (4)

$\frac{11}{12}$, $\frac{5}{12}$, $\frac{3}{4}$, $\frac{2}{3}$ and $\frac{5}{6}$

4 A road is of length 64 983 m. Find its length in kilometres approximating the result to the nearest hundredth. (3)

5 If L.E. 565.5 is distributed among 10 poor persons. (3)
How much money did each one take ?

Sheet 8

Total mark 20

From lesson 1 unit 1
to lesson 8 unit 1

1 **Find the result :** 3

[a] 3 968 ÷ 124 = ...

[b] 5 160 ÷ 215 = ...

[c] 19 968 ÷ 256 = ...

2 **Choose the correct answer :** 5

[a] 6 020 ÷ 215 = ... (34 *or* 32 *or* 28 *or* 26)

[b] 0.342 × 1.2 ..... 3.42 × 0.12 (< *or* = *or* >)

[c] $1\frac{3}{7}$ ..... $1\frac{5}{11}$ (< *or* = *or* >)

[d] $9\frac{1}{3} \times \frac{6}{7}$ = ... (8 *or* $\frac{1}{8}$ *or* $\frac{8}{21}$ *or* $2\frac{2}{3}$)

[e] 8 120 ÷ 145 = ... (58 *or* 56 *or* 54 *or* 52)

3 **Complete the following :** 5

[a] The number 14.669 ≃ ..... (to the nearest hundredth)

[b] 3.2 kg. = ... gm.

[c] 1 845 ÷ 123 = ...

[d] 0.97 × 0.05 = ...

[e] 75.351 ÷ 100 = ...

4 A truck can carry 162 boxes. Find the number of trips needed to transport 19 440 boxes. 3

5 [a] Ahmed bought 12 cans of juice , the price of each one is 1.85 pounds. 4
How much money did Ahmed pay ?

[b] **Arrange the following in an ascending order :**

0.6 , $\frac{5}{8}$, $\frac{2}{5}$ and 0.5

Sheet 9

Total mark 20

From lesson 1 unit 1
to lesson 9 unit 1

1 Complete the following : (5)

[a] 16.4 + 0.4 = ...

[b] 73.92 + 2.31 = ...

[c] 17.5 + 1.25 = ...

[d] 74.632 × 100 = ...

[e] 56.431 + 2.115 = ... ≃ .... (to the nearest hundredth)

2 Choose the correct answer : (5)

[a] 8.46 dm. = ... cm. (846 *or* 0.846 *or* 84.6 *or* 8 460)

[b] 172 × 0.003 ..... 0.172 × 0.3 (< *or* = *or* >)

[c] $2\frac{1}{3}$ ..... $\frac{7}{3}$ (< *or* = *or* >)

[d] 18.2 + 1.3 = ... (13 *or* 14 *or* 15 *or* 16)

[e] 54.5 + 0.5 = ... (1.9 *or* 1.09 *or* 19 *or* 109)

3 The length of a roll of cloth is 53.55 metres. It was divided into equal parts where the length of each part is 3.15 metres. Find the number of these parts. (3)

4 Find the number which if multiplied by 0.52 the result will be 1.248 (3)

5 Find the area of the rectangle whose length is 13.25 cm. and its width is 6.14 cm. , then approximate the result to the nearest hundredth. (4)

Sheet 10

Total mark 20

From lesson 1 *unit* 1
to lesson 10 *unit* 1

1 **Find the result :** (4)

[a] 17 ÷ 6 (approximated to the nearest tenth)

[b] 23 ÷ 7 (approximated to the nearest $\frac{1}{100}$)

[c] 12.7 ÷ 3 (approximated to the nearest hundredth)

[d] 12.34 ÷ 0.9 (approximated to the nearest $\frac{1}{10}$)

2 **Choose the correct answer :** (5)

[a] $\frac{1}{25} \times 50 \times 0.25$ = ... (4 *or* $\frac{1}{4}$ *or* $\frac{1}{2}$ *or* 2)

[b] 6.28 ÷ 0.4 = ... (15.7 *or* 157 *or* 1.57 *or* 0.157)

[c] $2\frac{1}{4} \times 2\frac{2}{3}$ = ... (6 *or* 3 *or* $\frac{2}{3}$ *or* $2\frac{1}{4}$)

[d] 7.4 ..... $7\frac{5}{8}$ (> *or* < *or* =)

[e] 7.8 ÷ 0.6 = ... (10 *or* 11 *or* 13 *or* 14)

3 **Complete the following :** (5)

[a] 39 days ≃ ..... weeks. (to the nearest week)

[b] $\frac{2}{11}$ ≃ ..... (to the nearest tenth)

[c] $2\frac{1}{3} + 1\frac{2}{7}$ = ...

[d] 25.2 ÷ 0.3 = ...

[e] 45.337 × 10 = ...

4 **Arrange the following ascendingly :** (3)

$3\frac{1}{2}$, $4\frac{1}{4}$, $3\frac{3}{4}$, $3\frac{1}{8}$ and $3\frac{2}{5}$

5 A family consumes 6.5 kg. of meat monthly where the cost of 1 kg. of meat is L.E. 38.5 Find what the family pays. (Approximate to the nearest pound) (3)

Sheet 11

Total mark 20

From lesson 1 unit 1
to lesson 1 unit 2

1 **State which of the following is a set and which is not a set :** (5)

[a] The colours of the Egyptian flag.

[b] The letters in the word "Egypt".

[c] Beautiful cities in Egypt.

[d] Intelligent pupils in your class.

[e] Days of the week.

2 **Write the elements of the following sets :** (5)

[a] The set of digits of the number 74 581

[b] The set of letters of the word "student".

[c] The whole numbers between 5 and 10

[d] The even numbers less than 10

[e] The factors of 6

3 **Complete each of the following :** (5)

[a] $12\frac{1}{2} \times \frac{4}{5}$ = ...

[b] 45.334 × 100 = ...

[c] 25.25 ÷ 0.25 = ...

[d] 72.358 ≃ ..... (to the nearest hundredth)

[e] 7.2 × 5.2 = ...

4 **A building consists of 7 floors. If the height of each floor is 3.05 metres , find the height of the building.** (2)

5 **Arrange the following in a descending order :** (3)

$\frac{1}{4}$, $\frac{4}{5}$, $\frac{1}{2}$, 0.4 and $\frac{3}{4}$

Sheet 12

Total mark 20

From lesson 1 unit 1
to lesson 2 unit 2

1 **Express each of the following sets by listing method :** 5

[a] A = the set of days of the week

[b] B = the set of digits of the number 32323

[c] C = the set of letters of the word "door"

[d] D = the set of prime numbers less than 10

[e] E = the set of even numbers between 7 and 17

2 **Express each of the following sets by description method :** 5

[a] A = {Port Said , Ismailia , Suez}

[b] B = {1 , 3 , 5}

[c] C = {11 , 13 , 17}

[d] D = {9 , 10 , 11 , 12}

[e] E = {o , a , g , l}

3 **Using the Venn diagram below , list the elements of each of the following :** 5

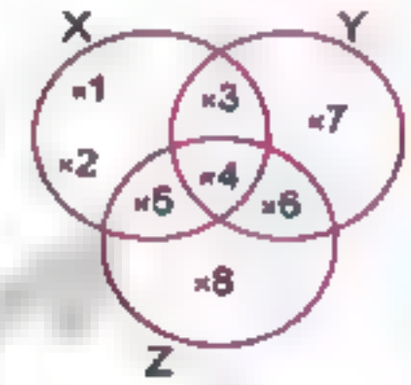
[a] X = ...

[b] Y = ...

[c] Z = ...

[d] The set of the elements found in X and Y = ...

[e] The set of the elements found in X , Y and Z = ...



4 **Complete each of the following :** 3

[a] 43 days ≃ ..... weeks (to the nearest week)

[b] 2.576 m. = ... cm.

[c] If $\frac{1}{3} = \frac{a}{15}$, then a = ...

[d] 1.23 × 0.6 = ... ≃ ... .

(to the nearest hundredth)

[e] $2\frac{1}{3} + \frac{5}{6}$ = ...

5 If the price a piece of sweet is 4.35 pounds , what is the price of 35 pieces of the sweet ? 2

Sheet 13

Total mark 20

From lesson 1 unit 1
to lesson 3 unit 2

1 If A = {2 , 5 , 6 , 7} and B = {0 , 1 , 5 , 6} , put the suitable sign of (∈ or ∉) : (5)

[a] 6 ..... A , 6 ..... B
[b] 2 ..... A , 2 ..... B
[c] 1 ..... A , 1 ..... B
[d] 5 ..... A , 5 ..... B
[e] 65 ..... A , 65 ..... B

2 State if each set is finite , infinite or empty : (5)

[a] The set of whole numbers lying between 3 and 4 (.....)
[b] The set of pupils in your school. (.....)
[c] The set of even numbers. (.....)
[d] The set of prime numbers between 1 and 3 (.....)
[e] The set of dinosaurs in the zoo. (.....)

3 Choose the correct answer : (4)

[a] The smallest fraction in the following is ..... ($\frac{1}{3}$ or $\frac{5}{8}$ or $\frac{2}{9}$ or $\frac{2}{5}$)
[b] $\frac{1}{2}$ ..... $\frac{1}{3}$ (> or = or <)
[c] The quotient of dividing 1.92 ÷ 0.6 = ...
(3.5 or 3.1 or 3.2 or 3)
[d] 28.9316 ≃ ..... (to the nearest thousandth)
(29 or 28.93 or 28.931 or 28.932)

4 Complete each of the following : (4)

[a] If $3 \in \{2 , x , 5\}$, then x = ...
[b] If $5 \in \{3 , x + 4\}$, then x = ...
[c] If $8 \in \{7 , 5 , x - 1\}$, then x = ...
[d] $5\frac{5}{8}$ ≃ ..... (to the nearest two decimal places)

5 Find the perimeter of the rectangle whose length is 4.1 cm. and its width is 3.5 cm. , then calculate its area. (2)

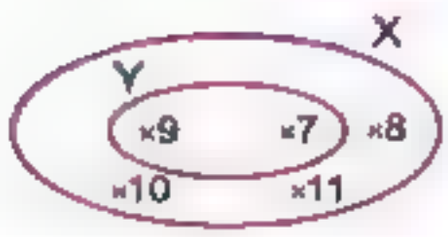
Sheet 14

Total mark 20

From lesson 1 unit 1
to lesson 4 unit 2

1 Using the opposite Venn diagram , complete using ($\in$, $\notin$, $\subset$ or $\not\subset$) : 4

[a] Y X
[b] 8 X
[c] $\{10\}$ X
[d] 11 ..... Y
[e] $\varnothing$ X
[f] $\{9 , 11\}$ ..... Y
[g] Y ..... $\{10 , 11 , 9 , 7\}$
[h] X ..... Y



2 Write down all the subsets for each of the following sets : 4

[a] $\{5 , 7\}$
[b] $\{3 , 4 , 8\}$

3 Complete each of the following : 5

[a] If $\{5 , 3 , 1\} = \{x , 5 , 1\}$, then x = ...
[b] 3.25×1.6 = ...
[c] $9\frac{3}{4} + 3\frac{1}{4}$ = ...
[d] If $\{7 , 10\} \subset \{2 , 10 , x\}$, then x = ...
[e] 70 hours $\simeq$ ..... days. (to the nearest day)

4 Choose the correct answer : 5

[a] $\{7\}$ ..... $\{17 , 77\}$ ($\in$ or $\notin$ or $\subset$ or $\not\subset$)
[b] 7 ..... the set of days of the week. ($\in$ or $\notin$ or $\subset$ or $\not\subset$)
[c] $\varnothing$ ..... $\{3 , 4 , 6\}$ ($\in$ or $\notin$ or $\subset$ or $\not\subset$)
[d] $135.42 \div 100$ = ...
(13 542 or 13.542 or 1.3542 or 1354.2)
[e] $\{1 , 2 , 3 , 4 , \dots\}$ is ..... set.
(a finite or an infinite or an empty)

5 A worker earns L.E. $2\frac{1}{2}$ per hour. 2

How many hours does he work to earn L.E. $8\frac{3}{4}$?

Sheet 15

Total mark 20

From lesson 1 unit 1
to lesson 5 unit 2

1 Complete the following :

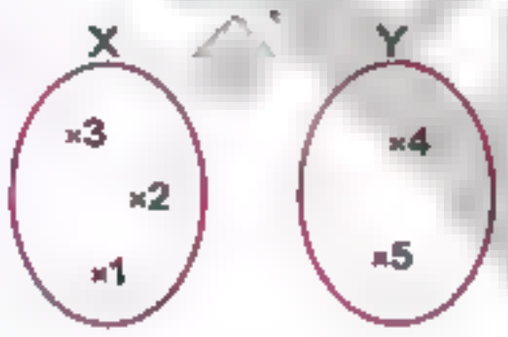
[a]

$X \cap Y =$ .....

[b]

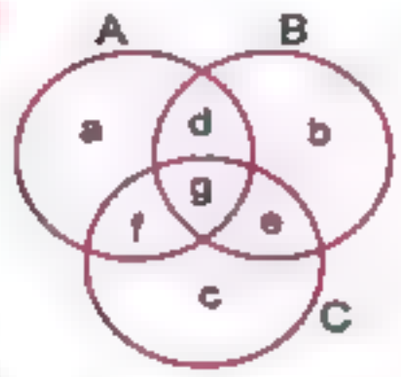
$A \cap B =$ ... ...

[c]



$X \cap Y =$ .....

[d]



$A \cap B \cap C =$ .....

4

2 Complete the following :

[a] $\{1 , 2\} \cap \{2 , 4\} =$ .....

[b] $\{1 , 3\} \cap \{5\} =$ .....

[c] $\{1 , 3\} \cap \varnothing =$ .....

[d] If $5 \in \{3 , x - 2\}$, then $x =$ .....

[e] $39\frac{2}{5} - 7.25 =$ ..... $\simeq$ ..... (to the nearest unit)

5

3 Choose the correct answer :

[a] $6.352 \times 100 =$ ..... (63.52 *or* 635.2 *or* 6 352 *or* 63 520)

[b] $0.03 \times 3.6 =$ ..... (0.108 *or* 1.08 *or* 10.8 *or* 0.0108)

[c] 2 ..... $\{11 , 22 , 33\}$ ($\in$ *or* $\notin$ *or* $\subset$ *or* $\not\subset$)

[d] 1 ..... $\{2 , 1 , 4\} \cap \{3 , 4 , 1\}$ ($\in$ *or* $\notin$ *or* $\subset$ *or* $\not\subset$)

[e] $\{a , b\}$ ..... $\{a , b , c\} \cap \{a , c , d\}$ ($\in$ *or* $\notin$ *or* $\subset$ *or* $\not\subset$)

5

4 Find the result of each of the following :

[a] $4\frac{1}{4} + 8\frac{1}{2}$

[b] 6.217×100

[c] $11\,664 \div 216$

[d] $\frac{2}{11}$ approximated to the nearest tenth.

4

5 If L.E. 565.5 is distributed among some poor people and each of them took L.E. 6.5 Find the number of poor people.

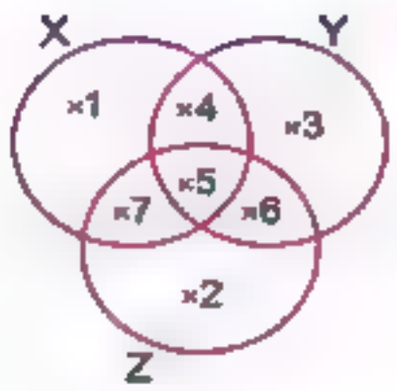
2

Sheet 16

Total mark 20

From lesson 1 unit 1
to lesson 6 unit 2

1 **Using the opposite Venn diagram , complete :** (4)



[a] X = ...
[b] Y = ...
[c] Z = ...
[d] X ∪ Y = ...
[e] X ∪ Z = ...
[f] Z ∪ Y = ...
[g] X ∪ Y ∪ Z = ...
[h] X ∩ Y ∩ Z = ...

2 **Choose the correct answer :** (5)

[a] {1 , 9} .... the set of odd numbers. (∈ or ∉ or ⊂ or ⊄)
[b] 62.5 ÷ 2.5 = ... (25 or 35 or 700 or 45)
[c] 20.379 ≃ ..... (to the nearest hundredth)
(20 or 20.37 or 20.4 or 20.38)
[d] ∅ .... {0} (= or ⊂ or ⊄ or ∈)
[e] If X ⊂ Y , then X ∩ Y = ... (X or Y or ∅ or {0})

3 **Complete the following :** (5)

[a] If 4 ∈ {6 , x , 9} , then x = ...
[b] If X = {3 , 4} , Y = {3 , 5} , then X ∪ Y = ...
[c] 3.56 km. = ... m.
[d] 0.45 × 0.6 = ...
[e] 753.81 ÷ 100 = ...

4 [a] Find the value of x if : $\frac{1}{4} = \frac{3}{x}$ (4)

[b] **Arrange ascendingly :** 0.8 , $\frac{3}{8}$, $\frac{3}{4}$ and 0.6

5 If the price of one kg. of apple is 9.75 pounds. (2)

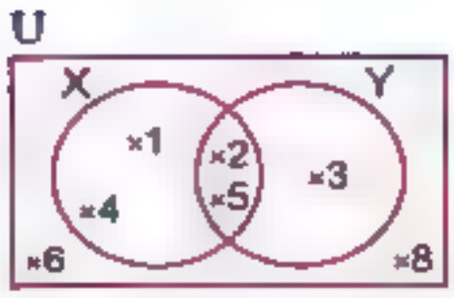
Find the price of 2.5 kg.

Sheet 17

Total mark 20

From lesson 1 unit 1
to lesson 7 unit 2

1 **Using the opposite Venn diagram , complete :** — 5



[a] U = ...

[b] X ∩ Y = ...

[c] X ∪ Y = ...

[d] $\grave{X}$ = ...

[e] $\grave{Y}$ = ...

2 **If A = {1 , 2 , 3} , B = {2 , 3 , 5} , U = {1 , 2 , 3 , 4 , 5 , 6} , represent A , B and U by a Venn diagram , then find :** — 3

[a] $\grave{A}$

[b] $\grave{B}$

[c] A ∩ B

[d] A ∪ B

3 **Put the suitable sign of (∈ , ∉ , ⊂ or ⊄) :** — 4

[a] 12 ..... {10 , 2}

[b] {7} ..... the set of even numbers.

[c] 3 ..... {33}

[d] {2 , 5 , 9} ..... the set of prime numbers.

4 **Choose the correct answer :** — 4

[a] 10.57 ÷ 9 ≃ ..... to the nearest hundredth.

(1.20 *or* 1.18 *or* 1.17 *or* 1.16)

[b] $2\frac{1}{4} \times 1\frac{2}{3}$ = ...

($4\frac{1}{4}$ *or* $3\frac{3}{4}$ *or* $3\frac{7}{12}$ *or* $2\frac{2}{12}$)

[c] Which set is not a subset of {g , h , f} ?

({f} *or* {f , g , h} *or* { } *or* {gh})

[d] {3 , 2 , 5} ∩ {32 , 5} = ...

({3 , 2 , 5} *or* {32 , 5} *or* {5} *or* {32})

5 **Find the result :** — 4

[a] 937.52 × 10

[b] 355 ÷ 33 (to the nearest thousandth)

[c] $7\frac{4}{5} + 3\frac{1}{4}$

[d] 38.56 ÷ 100

Sheet 18

Total mark 20

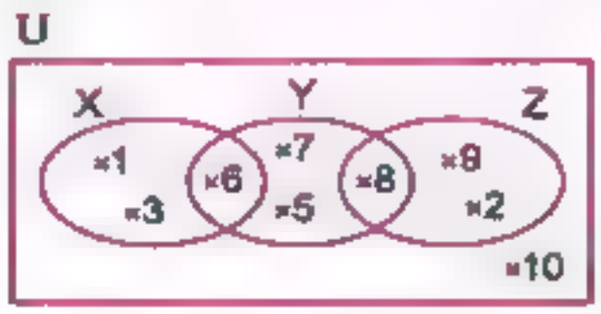
From lesson 1 *unit* 1
to lesson 8 *unit* 2

1 Using the opposite Venn diagram , list each of the following : (3)

[a] $A \cap B$ [b] $A \cup B$
[c] $A - B$ [d] $B - A$
[e] $\grave{A}$ [f] $\grave{B}$

2 Using the opposite Venn diagram , find : (5)

[a] $X \cap Y$ [b] $Y \cup Z$
[c] $Z - Y$ [d] $\grave{X}$
[e] $X \cup Y \cup Z$



3 Complete the following : (5)

[a] $\{2 , 3\} \cup \{3 , 4\}$ = ...

[b] If $\{3 , 5\} \subset \{3 , 10 , x\}$, then x = ...

[c] $\{2 , 4 , 5\} - \{3 , 4 , 7\}$ = ...

[d] If $X \subset Y$, then $X - Y$ = ...

[e] 0.54×1000 = ...

4 Choose the correct answer : (5)

[a] $\varnothing$ ..... $\{3 , 5\}$ ($\in$ or $\notin$ or $\subset$ or $\not\subset$)

[b] If $\{4 , 7 , x\} = \{1 , 4 , 7\}$, then x = ...

(1 or 4 or 5 or 7)

[c] 45 days $\simeq$ ..... weeks (to the nearest week)

(5 or 6 or 7 or 8)

[d] The greatest number in the following is .....

(0.111 or 0.12 or 0.123 or 1.023)

[e] The number of subsets of the set $\{4 , 5\}$ = ...

(2 or 3 or 4 or 5)

5 A big barrel has $131\frac{1}{4}$ litres of oil and we want to distribute the oil in bottles. The capacity of each is $5\frac{1}{4}$ litres. How many bottles are needed for that ? (2)

Second

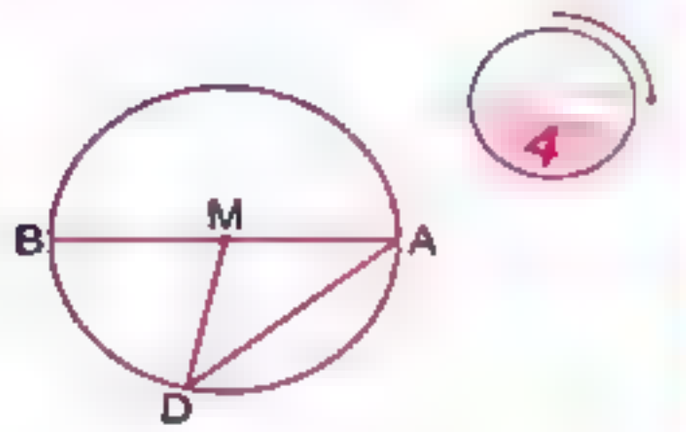
Worksheets on unit (3) and unit (4)

Sheet 1

Total mark 20

On lesson **1** *unit* **3**

1 **In the opposite figure , complete :** 4



[a] $\overline{AB}$ is a ..... in the circle.

[b] $\overline{AD}$ is a ..... in the circle.

[c] $\overline{MB}$ is a ..... in the circle.

[d] The point ..... is the centre of the circle.

2 **Complete the following :** 4

[a] The longest chord in the circle is called .....

[b] All radii in the same circle are .....

[c] A circle of radius length 7 cm. , then its diameter length = ... cm.

[d] The chord which passes through the centre of the circle is called ..... .

3 **Draw a circle of centre M and radius length 3 cm.** 4

4 **Draw a circle N with diameter length 8 cm.** 4

5 **Draw the circle of centre M with radius length 5 cm. , draw the diameter $\overline{AB}$, then draw the chord $\overline{BC}$ with length 6 cm. , then draw $\overline{AC}$ and find its length.** 4

Sheet 2

Total mark 20

From lesson 1 unit 3
to lesson 2 unit 3

1 [a] Draw the triangle ABC in which AB = 7 cm. , BC = 5 cm. , AC = 6 cm. (4)

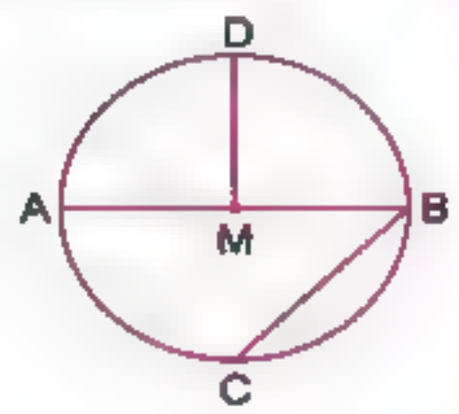
[b] Draw a circle M of radius length 4 cm.

2 [a] Draw the equilateral triangle XYZ whose side length is 5 cm. (4)

[b] **From the opposite figure , complete :**

(1) $\overline{BC}$ is called ..... in the circle M

(2) If AB = 10 cm. , then MD = ... cm.



3 [a] Draw the triangle LMN in which LM = MN = 5 cm. and LN = 6 cm. (4)

[b] Draw a circle M of radius length 5 cm. , then draw the diameter $\overline{AB}$ and the chord $\overline{AC}$ of the length 6 cm. Draw $\overline{BC}$ and find its length.

4 [a] Draw the triangle XYZ , such that XY = 3 cm. , YZ = 4 cm. and XZ = 5 cm. (4)

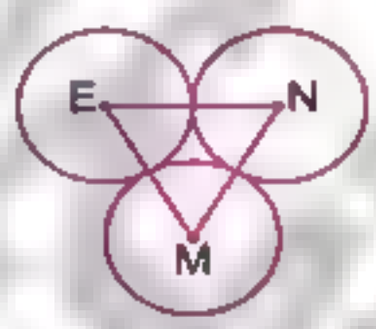
What is the type of triangle XYZ according to the measures of its angles ?

[b] **In the opposite figure :**

Three circles of centres M , N and E

of radius length 3 cm. for each.

Find the perimeter of Δ MEN

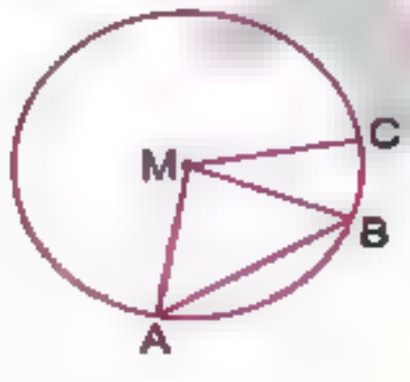


5 [a] Draw the equilateral triangle ABC whose perimeter is 12 cm. (4)

[b] **From the opposite figure , complete :**

(1) ..... is a chord in the circle M

(2) m (∠ BAM) = m (∠ .....)



Sheet 3

Total mark 20

From lesson 1 unit 3
to lesson 3 unit 3

1 Draw the triangle XYZ in which XY = 4 cm. , YZ = 5 cm. and ZX = 6 cm. , then draw its altitudes (Don't remove the arcs) — 4

2 Draw the triangle ABC in which AB = BC = 5 cm. and AC = 8 cm. , then draw the altitude from B to $\overline{AC}$ and measure its length. — 4

3 Draw the equilateral triangle ABC whose side length = 4 cm. , then draw $\overline{AD} \perp \overline{BC}$, find : — 4

[a] m (∠ CAD)

[b] The length of $\overline{BD}$

[c] The perimeter of the triangle ABC

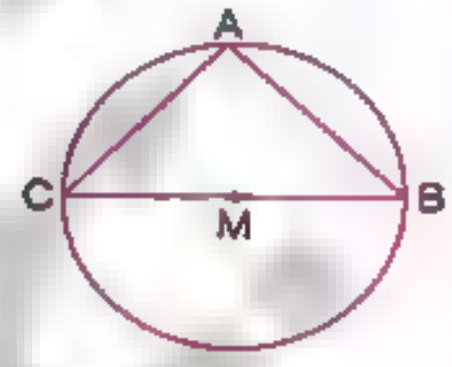
4 **Complete :** — 4

[a] To draw a circle of diameter length 12 cm. , then the opening distance of the compasses should be ... . cm.

[b] The number of altitudes of the right-angled triangle is ... .

[d] **In the opposite figure :**

The greatest chord in the circle M is ... , ...



[d] The altitudes of the obtuse-angled triangle intersect at one point located ..... the triangle.

5 Draw Δ ABC in which AB = 6 cm. , BC = 8 cm. and AC = 10 cm. , then draw $\overline{BD} \perp \overline{AC}$, find : — 4

[a] m (∠ ABC)

[b] The length of $\overline{BD}$

Sheet 4

Total mark 20

From lesson 1 unit 3
to lesson 1 unit 4

1 **The following table shows the result of a survey has been applied to know the views of 100 pupils about the favorite game to them :** 5

The game	Football	Handball	Basketball
The number of views	50	40	10

[a] If one pupil is chosen at random , answer the following questions :

(1) What is the probability that one of them prefers football ?

(2) What is the probability that one of them prefers handball ?

(3) What is the probability that one of them prefers basketball ?

[b] If there are 300 pupils , what is the expected value of the number of pupils who prefer football ?

[c] If there are 1000 pupils what is the expected value of the number of pupils who prefer basketball ?

2 Draw the triangle ABC in which AB = 5 cm. , BC = 5 cm. and AC = 6 cm. , then draw its altitude from B to $\overleftrightarrow{AC}$ and measure its length. 4

3 **Complete the following :** 4

[a] The length of a diameter of a circle whose radius length is 4 cm. = ... cm.

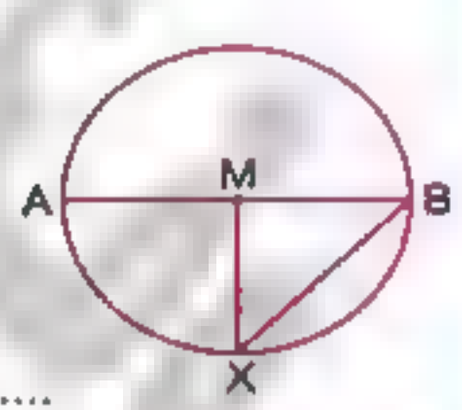
[b] The number of altitudes of any triangle is ....

[c] **From the opposite figure :**

(1) The longest chord in the circle is .....

and it is called . ...

(2) $\overline{XB}$ is called ... . in the circle whose centre is ... .



4 Draw a circle M of radius length 5 cm. , then draw the two radii $\overline{MA}$ and $\overline{MB}$ where m (∠ AMB) = 60° , then draw $\overline{AB}$ and find its length. 4

5 Draw the equilateral Δ ABC in which its side length is 3 cm. , then find its perimeter. 3

Sheet 5

Total mark 20

From lesson 1 unit 3
to lesson 2 unit 4

1 A box contains 4 white balls , 3 blue balls and 5 red balls , all of them are of equal size. When one ball is drawn randomly from the box , find the probability of : (4)

[a] blue ball.
[b] red ball.
[c] not red ball.
[d] red or blue ball.

2 **Complete each of the following :** (4)

[a] The probability of the certain event is .....
[b] Any chord passing through the centre of the circle is called a .....
[c] The number of altitudes of the scalene triangle is .....
[d] As throwing a metallic coin once , then the probability of a tail appears = ...

3 **Choose the correct answer :** (4)

[a] It is ..... that the lion flies. (sure *or* possible *or* impossible)
[b] A letter is selected randomly from the word «MARIAM» , then the probability of selecting the letter «M» is .....
($\frac{1}{3}$ *or* $\frac{1}{2}$ *or* $\frac{2}{5}$ *or* $\frac{1}{6}$)
[c] As throwing a fair die once and observing the apearing number on the upper face , then the probability of appearing an even number is .....
($\frac{1}{3}$ *or* $\frac{1}{2}$ *or* $\frac{5}{6}$ *or* $\frac{1}{6}$)
[d] The probability of the impossible event is .....
($\frac{1}{2}$ *or* $\frac{3}{4}$ *or* 1 *or* 0)

4 A card has been randomly drawn out of 10 cards numbered from 1 to 10 Find the probability of getting : (4)

[a] an odd number.
[b] a prime number.
[c] a number less than 5
[d] a number divisible by 3

5 [a] Draw a circle M of diameter length 10 cm. , then draw the diameter $\overline{AB}$ and draw the chord $\overline{BC}$ whose length is 5 cm. and draw $\overline{AC}$, find m ($\angle$ A) (4)

[b] Draw the triangle ABC in which AB = 6 cm. and BC = AC = 5 cm. , then draw the altitude $\overline{CD}$ on $\overline{AB}$ and find its length.

First Worksheets on unit 1 and unit 2

Sheet 1

1 [a] 0.74 [b] 152.302 [c] 2.76
[d] 3.04 [e] 1.000

2 [a] hundredth [b] hundredth [c] 4.13
[d] 4 [e] 48

3 [a] 29.821 ≈ 29.82 [b] 8.1054 ≈ 8.105
[c] 2.355 ≈ 2.36 [d] 0.359 ≈ 0.36
[e] 13

4 The greatest decimal fraction is 0.5432 ,
0.5432 ≈ 0.54 (to the nearest hundredth)
0.5432 ≈ 0.543 (to the nearest thousandth)

5 The sum of lengths of the two pieces of cloth
= 168.3072 ≈ 168.307 m.

Sheet 2

1 [a] > [b] < [c] >
[d] < [e] < [f] >

2 [a] (1) The order is : $\frac{1}{4}$, $\frac{3}{5}$, $\frac{1}{2}$ and $\frac{7}{10}$
(2) The order is : $1\frac{1}{2}$, 2.4 , $2\frac{1}{2}$ and $3\frac{4}{5}$
[b] (1) The order is : 1 , $\frac{7}{8}$, $\frac{1}{2}$ and $\frac{2}{5}$
(2) The order is : 0.8 , $\frac{3}{4}$, $\frac{1}{2}$, 0.4 and $\frac{1}{4}$

3 [a] 37.26 [b] 9
[c] thousandth [d] 9 [e] 0.01

4 x = 8 or 7 or 6 or 5 or 4

5 The smallest decimal fraction is 0.2349 ,
0.2349 ≈ 0.235 (to the nearest thousandth)

Sheet 3

1 [a] 3256.3 [b] 25.083 [c] 7003
[d] 9 [e] 4.63

2 [a] > [b] = [c] 6
[d] hundredth [e] 100

3 [a] ✗ [b] ✓ [c] ✓
[d] ✗ [e] ✗

4 The price of pieces = 2.25 × 10 = 22.5 pounds

5 [a] (1) 406.1 (2) 741.8
[b] The order is : 4.025 , $4\frac{1}{8}$, $4\frac{1}{4}$ and 4.375

Sheet 4

1 [a] 37.1 [b] 1.44 [c] 0.042
[d] 17.28 [e] 0.714

2 [a] 0.0092 [b] tenth [c] >
[d] = [e] 426.31

3 [a] 3.561 [b] 20.132 ≈ 20.13
[c] 26.85 ≈ 26.9 [d] 73
[e] 16.9329 ≈ 16.933

4 The area of the rectangle = 2.4 × 4.5
= 10.8 cm^2 ≈ 11 cm^2

5 The price of cloth = 2.25 × 7.75
= 17.4375 ≈ 17 pounds.

Sheet 5

1 [a] $\frac{2}{5}$ [b] 10 [c] $15\frac{3}{10}$
[d] 1.75 [e] 3 759

2 [a] 38 623 [b] $\frac{8}{8}$ [c] <
[d] 93.499 [e] 7

3 [a] $\frac{14}{5} = 2\frac{4}{5}$ [b] 26.048 [c] 3 500
[d] 2.38 [e] 1

4 [a] The order is : 1 , $\frac{7}{8}$, $\frac{1}{2}$ and $\frac{2}{5}$
[b] (1) < (2) <

5 The price of bars = $2\frac{3}{4}$ × 15 = 41.25 pounds.

Sheet 6

1 [a] 2 [b] $\frac{4}{7}$ [c] 18
[d] $\frac{7}{2} = 3\frac{1}{2}$ [e] $\frac{1}{2}$

2 [a] > [b] > [c] =
[d] < [e] =

3 [a] 23.35 [b] 256 [c] 2.53
[d] $\frac{1}{9}$ [e] $\frac{2}{15}$

4 The side length = $\frac{8}{11} \div 4 = \frac{2}{11}$ m.

5 The price of the cloth = 4.2 × 48.7
= 204.54 ≈ 205 pounds.

Sheet 7

1 [a] 0.84 [b] 0.035 [c] 2.4568
[d] 0.3725 [e] 6

2 [a] 1 000 [b] < [c] >
[d] $\frac{3}{4}$ [e] 6

3 The order is : $\frac{5}{12}$, $\frac{2}{3}$, $\frac{3}{4}$, $\frac{5}{6}$ and $\frac{11}{12}$

4 The length of the road = 64 983 ÷ 1 000
= 64.98 km.

5 The share of each one = 565.5 ÷ 10
= L.E. 56.55

Sheet 8

1 [a] 32 [b] 24 [c] 78

2 [a] 28 [b] = [c] <
[d] 8 [e] 56

3 [a] 14.67 [b] 3 200 [c] 15
[d] 0.0485 [e] 0.75351

4 The number of trips = 19 440 ÷ 162
= 120 trips.

5 [a] Ahmed paid = 12 × 1.85 = 22.2 pounds.
[b] The order is : $\frac{5}{8}$, 0.5 , 0.6 and $\frac{6}{8}$

Sheet 9

1 [a] 41 [b] 32 [c] 14
[d] 7463.2 [e] 58.646 ≈ 58.65

2 [a] 84.6 [b] > [c] =
[d] 14 [e] 109

3 The number of parts = 53.55 ÷ 3.15 = 17 parts.

4 The number = 1.248 ÷ 0.52 = 2.4

5 The area = 13.25 × 6.14 = 81.355 ≈ 81.36 cm^2

Sheet 10

1 [a] 2.8 [b] 3.29 [c] 4.23 [d] 13.7

2 [a] $\frac{1}{2}$ [b] 15.7 [c] 6
[d] < [e] 13

3 [a] 6 [b] 0.2 [c] $\frac{49}{27}$
[d] 84 [e] 453.37

4 The order is : $3\frac{1}{8}$, $3\frac{2}{5}$, $3\frac{1}{2}$, $3\frac{3}{4}$ and $4\frac{1}{4}$

5 The family pays = 38.5 × 6.5 = L.E. 250.25
≈ L.E. 250

Sheet 11

1 [a] set [b] set [c] not set
[d] not set [e] set

2 [a] The elements are : 7 , 4 , 5 , 8 and 1
[b] The elements are : a , t , u , d , e and n
[c] The elements are : 6 , 7 , 8 and 9
[d] The elements are : 0 , 2 , 4 , 6 and 8
[e] The elements are : 1 , 2 , 3 and 6

3 [a] 10 [b] 4533.4 [c] 101
[d] 72.36 [e] 37.44

4 The height of the building = 3.05 × 7
= 21.35 metres.

5 The order is : $\frac{4}{5}$, $\frac{3}{4}$, $\frac{1}{2}$, 0.4 and $\frac{1}{4}$

Sheet 12

1 [a] A = {Saturday , Sunday , Monday , Tuesday , Wednesday , Thursday , Friday}
[b] B = {3 , 2} [c] C = {d , o , r}
[d] D = {2 , 3 , 5 , 7}
[e] E = {8 , 10 , 12 , 14 , 16}

2 [a] A = The set of governorates on the Suez Canal
[b] B = The set of digits of the number 531
[c] C = The set of prime numbers between 10 and 18
[d] D = The set of whole numbers between 8 and 13
[e] E = The set of letters of the word "goal"

3 [a] {1 , 2 , 3 , 4 , 5}
[b] {3 , 4 , 6 , 7} [c] {4 , 5 , 6 , 8}
[d] {3 , 4} [e] {4}

4 [a] 6 [b] 257.6 [c] 5
[d] 0.738 [e] $\frac{14}{5} = 2\frac{4}{5}$

5 The price of pieces
= 4.35 × 35 = 152.25 pounds.

Sheet 13

1 [a] ∈ , ∈ [b] ∈ , ∉ [c] ∉ , ∈
[d] ∈ , ∈ [e] ∉ , ∉

2 [a] empty [b] finite [c] infinite
[d] finite [e] empty

3 [a] $\frac{2}{3}$ [b] >
[c] 3.2 [d] 28.932

4 [a] 3 [b] 1
[c] 9 [d] 5.83

5 The perimeter = (4.1 + 3.5) × 2 = 15.2 cm.
The area = 4.1 × 3.5 = 14.35 cm²

Sheet 14

1 [a] ⊂ [b] ∈ [c] ⊂
[d] ∉ [e] ⊂ [f] ⊄
[g] ⊂ [h] ⊄

2 [a] ∅ , {5} , {7} , {5 , 7}
[b] ∅ , {3} , {4} , {8} , {3 , 4} , {3 , 8} , {4 , 8} , {3 , 4 , 8}

3 [a] 3 [b] 5.2 [c] 3
[d] 7 [e] 3

4 [a] ⊄ [b] ∉ [c] ⊂
[d] 1.3542 [e] an infinite

5 The number of hours = $8\frac{3}{4} + 2\frac{1}{2}$
= $3\frac{1}{2}$ hours.

Sheet 15

1 [a] {3} [b] {6 , 7}
[c] ∅ [d] {g}

2 [a] {2} [b] ∅ [c] ∅
[d] 7 [e] 32.15 = 32

3 [a] 635.2 [b] 0.108 [c] ∉
[d] ∈ [e] ⊄

4 [a] $\frac{1}{2}$ [b] 621.7
[c] 54 [d] 0.2

5 The number of poor people
= 565.5 ÷ 6.5 = 87 persons.

Sheet 16

1 [a] {1 , 4 , 5 , 7}
[b] {3 , 4 , 5 , 6}
[c] {2 , 5 , 6 , 7}
[d] {1 , 4 , 5 , 7 , 3 , 6}
[e] {1 , 2 , 4 , 5 , 6 , 7}
[f] {2 , 3 , 4 , 5 , 6 , 7}
[g] {1 , 2 , 3 , 4 , 5 , 6 , 7} [h] {5}

2 [a] ⊂ [b] 25 [c] 20.38
[d] ⊂ [e] X

3 [a] 4 [b] {3 , 4 , 5} [c] 3 560
[d] 0.27 [e] 7.5381

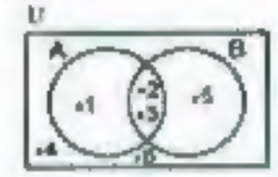
4 [a] 12
[b] The order is : $\frac{3}{8}$, 0.6 , $\frac{3}{4}$ and 0.8

5 The price of apples = 9.75 × 2.5
= 24.375 pounds.

Sheet 17

1 [a] {1 , 2 , 3 , 4 , 5 , 6 , 8}
[b] {2 , 5} [c] {1 , 2 , 3 , 4 , 5}
[d] {3 , 6 , 8} [e] {1 , 4 , 6 , 8}

2 [a] $\acute{A}$ = {5 , 4 , 6}
[b] $\acute{B}$ = {1 , 4 , 6}
[c] A ∩ B = {2 , 3}
[d] A ∪ B = {1 , 2 , 3 , 5}



3 [a] ∉ [b] ⊄ [c] ∉ [d] ⊄

4 [a] 1.17 [b] $3\frac{3}{4}$ [c] {gh} [d] {5}

5 [a] 9375.2 [b] 10.758
[c] $2\frac{2}{5}$ [d] 0.3856

Sheet 18

1 [a] {8} [b] {1 , 3 , 7 , 8}
[c] {1 , 7} [d] {3}
[e] {3 , 9} [f] {1 , 7 , 9}

2 [a] {6} [b] {2 , 5 , 6 , 7 , 8 , 9}
[c] {2 , 9} [d] {2 , 5 , 7 , 8 , 9 , 10}
[e] {1 , 2 , 3 , 5 , 6 , 7 , 8 , 9}

3 [a] {2 , 3 , 4} [b] 5 [c] {2 , 5}
[d] ∅ [e] 540

4 [a] ⊂ [b] 1 [c] 6
[d] 1.023 [e] 4

5 The number of bottles = 131 $\frac{1}{4}$ + 5 $\frac{1}{4}$
= 25 bottles

Second — Worksheets on unit 3 and unit 4

Sheet 1

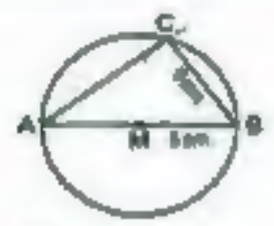
1 [a] diameter [b] chord
[c] radius [d] M

2 [a] diameter [b] equal in length
[c] 14 [e] diameter

3 Draw by yourself.

4 Draw by yourself.

5



The length of $\overline{AC}$ = 8 cm.

Sheet 2

1 [a]

[b]

2 [a]

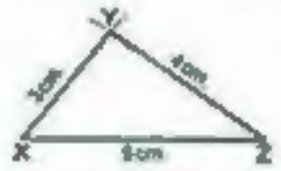
[b] (1) chord (2) 5

3 [a]

[b]

The length of $\overline{BC}$ = 8 cm.

4 [a]



Δ XYZ is a right-angled triangle.

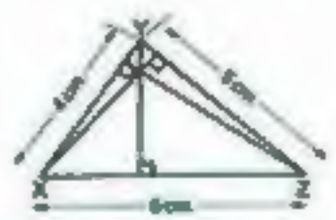
[b] EN = NM = ME = 6 cm.
The perimeter of Δ MEN = 6 + 6 + 6
= 18 cm.

5 [a] The side length of the triangle.
= 12 ÷ 3 = 4 cm.

[b] (1) $\overline{AB}$
(2) ABM

Sheet 3

1



2

The length of $\overline{BD}$ = 3 cm.

3

[a] m (∠ CAD) = 30°

[b] The length of $\overline{BD}$ = 2 cm.

[c] The perimeter of the triangle ABC
= 4 + 4 + 4 = 12 cm.

4 [a] 6 [b] 3
[c] $\overline{BC}$ [d] outside

5

[a] 90° [b] 4.8 cm.

Sheet 4

1 [a] (1) $\frac{1}{2}$ (2) $\frac{2}{5}$ (3) $\frac{1}{10}$
[b] 150 [c] 100

2

The length of the altitude = 4 cm.

3 [a] 8 [b] 3
[c] (1) $\overline{AB}$, diameter
(2) chord , M

4

The lenght of $\overline{AB}$ = 5 cm.

5

The perimeter of Δ ABC = 3 + 3 + 3 = 9 cm.

Sheet 5

1 [a] $\frac{1}{4}$ [b] $\frac{6}{12}$
[c] $\frac{7}{12}$ [d] $\frac{8}{12} = \frac{2}{3}$

2 [a] 1 [b] diameter
[c] 3 [d] $\frac{1}{2}$

3 [a] Impossible [b] $\frac{1}{3}$
[c] $\frac{1}{2}$ [d] 0

4 [a] $\frac{1}{2}$ [b] $\frac{2}{3}$ [c] $\frac{5}{6}$ [d] $\frac{5}{10}$

5 [a]

m (∠ A) = 30°

[b]

The length of $\overline{CD}$ = 4 cm.